

Emerging concerns: flame retardants in the marine mammals of Puget Sound and Strait of Georgia

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Marine mammals are often exposed to high concentrations of persistent organic pollutants as a result of their long lives, relative inability to breakdown such contaminants, and their high position in marine food chains. We previously demonstrated that southern resident killer whales are heavily contaminated with polychlorinated biphenyls (PCBs). Our harbour seal monitoring work has supported evidence that Puget Sound is a regional PCB hotspot. In a further attempt to characterize local killer whale habitat quality, we measured new generation flame retardants, polybrominated diphenyl ethers (PBDEs), in non-migrating harbour seals from four sites in Washington State and British Columbia. Our results suggest that the largely unregulated PBDEs represent a significant and emerging concern at the top of the coastal food chain. In a study of harbour seal “food baskets”, PCBs and DDT represented the major contaminant classes in the diet of Strait of Georgia seals, but PBDEs have taken second place in the diet of Puget Sound seals. Increasing concentrations over time, and higher concentrations in Puget Sound seals and their prey, highlight the emergence of this new concern in this transboundary region. This information should be relevant to Conservation Planning for the southern resident killer whale community.